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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,041	11/04/2003	Joon-Kui Ahn	P-0613	3151

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EXAMINER
DEAN, RAYMOND S

ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/700,041	AHN ET AL.	
	Examiner	Art Unit	
	Raymond S. Dean	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 2, 6 - 8, 11 - 14, 16 - 26* is/are rejected.

7)☒ Claim(s) *3 - 5, 9 - 10, 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *0504*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 15 is objected to because of the following informalities: "TPC_comb (HS_start)" in line 7 should be changed to "TPC_comb (HS_end)". Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 – 2, 11 – 14, 16 – 22, and 24 – 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Malladi et al. (US 6,850,771).

Regarding Claim 1, Malladi teaches In a mobile communication terminal continuously transmitting a general control channel signal and intermittently transmitting a specific control channel signal (Col. 2 lines 10 – 11, lines 40 – 47, the general control channel is the DPCCH and the specific control channel is the HS-DPCCH, the HS-DPCCH signal is transmitted intermittently for HSDPA), a power

control method comprising the steps of: increasing a power of a general control channel to a power level requested to demodulate a specific control channel once transmission of the specific control channel signal is executed (Cols. 2 lines 14 – 31, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the adjusting of the threshold (T) and the traffic to pilot ratio enables an adjustment of the power level of the DPCCH and the HS-DPCCH for optimal demodulation); and adjusting the increased power to meet a power level requested by a current general control channel transmission if the specific control channel transmission is completed (Cols. 2 lines 14 – 31, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the adjusting of the threshold (T) and the traffic to pilot ratio enables an adjustment of the power level of the DPCCH and the HS-DPCCH for optimal demodulation).

Regarding Claim 2, Malladi teaches all of the claimed limitations recited in Claim 1. Malladi further teaches removing a power level increment from the increased power; and re-adjusting the increased power from which the power level increment is removed to the power level requested by the current general control channel transmission (Col. 3 lines 12 – 17, lines 36 – 49, the power level of the DPCCH can be increased or decreased, an increase or decrease comprises the addition or removal of a power level increment).

Regarding Claim 11, Malladi teaches all of the claimed limitations recited in Claim 1. Malladi further teaches wherein the specific control channel is a HS_DPCCH (high speed-dedicated physical control channel) in a HSDPA system and the general

control channel is DPCCH (dedicated physical control channel) (Col. 2 lines 10 – 11, lines 40 – 47).

Regarding Claim 12, Malladi teaches all of the claimed limitations recited in Claim 1. Malladi further teaches wherein the terminal is in soft handover (Cols. 1 lines 66 – 67, 2 line 1, lines 26 – 34, the OR of DOWNS method occurs in power control during soft handoff).

Regarding Claim 13, Malladi teaches all of the claimed limitations recited in Claim 1. Malladi further teaches wherein the terminal performs HSDPA (high-speed downlink packet access) service (Col. 2 lines 46 – 47).

Regarding Claim 14, Malladi teaches all of the claimed limitations recited in Claim 1. Malladi further teaches wherein the adjusted power is applied to transmission of a first slot section after completion of the specific control channel transmission (Cols. 2 lines 14 – 31, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the control channel frames comprise slots).

Regarding Claim 16, Malladi teaches a method of adjusting uplink DPCCH (dedicated physical control channel) transmission power for a terminal in soft handover that transmits a DPCCH using a first power control method, the adjusting method comprising: applying a second power control method to the DPCCH transmission for at least a K_algo1 number of slots upon completion of HS-DPCCH (high speed dedicated physical control channel) transmission (Cols. 2 lines 14 – 34, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the control channel frames comprise slots, the adjusting of the threshold (T) and the traffic to pilot ratio enables an adjustment of the power level of

the DPCCH and the HS-DPCCH for a particular number of slots for optimal demodulation).

Regarding Claim 17, Malladi teaches all of the claimed limitations recited in Claim 16. Malladi further teaches applying, after completion of HS-DPCCH transmission, the first power control method beginning from a boundary of a first N slot group or a first M.times.N slot group appearing after a (K_algo1).sup.th slot (Cols. 2 lines 14 – 34, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the control channel frames comprise slots thus the adjusting of the threshold (T) and the traffic to pilot ratio enables an adjustment of the power level of the DPCCH and the HS-DPCCH for a particular number of slots for optimal demodulation).

Regarding Claim 18, Malladi teaches all of the claimed limitations recited in Claim 16. Malladi further teaches wherein a region operating under the second power control method is dynamically reduced (Cols. 2 lines 14 – 34, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the control channel frames comprise slots thus the adjusting of the threshold (T) and the traffic to pilot ratio enables an adjustment of the power level of the DPCCH and the HS-DPCCH for a particular number of slots for optimal demodulation, a particular slot region will thus operate under said power adjustment).

Regarding Claim 19, Malladi teaches all of the claimed limitations recited in Claim 17. Malladi further teaches wherein a region operating under the second power control method is dynamically reduced (Cols. 2 lines 14 – 34, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the control channel frames comprise slots thus the adjusting of the threshold (T) and the traffic to pilot ratio enables an adjustment of the power level of

the DPCCH and the HS-DPCCH for a particular number of slots for optimal demodulation, a particular slot region will thus operate under said power adjustment).

Regarding Claim 20, Malladi teaches a method of adjusting uplink transmission control power for a terminal in soft handover, the method comprising: increasing a first uplink transmission control power up to a second uplink transmission control power such that a high speed control channel can be transmitted (Cols. 2 lines 14 – 34, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the adjusting of the threshold (T) and the traffic to pilot ratio enables an adjustment of the power level of the DPCCH and the HS-DPCCH for optimal demodulation); and decreasing the second uplink control power back to the first uplink transmission control power after transmission of the high speed control channel is completed (Cols. 2 lines 14 – 34, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the adjusting of the threshold (T) and the traffic to pilot ratio enables an adjustment of the power level of the DPCCH and the HS-DPCCH for optimal demodulation).

Regarding Claim 21, Malladi teaches all of the claimed limitations recited in Claim 20. Malladi further teaches the control channel is a DPCCH (dedicated physical control channel) (Col. 2 lines 10 – 11)

Regarding Claim 22. Malladi teaches all of the claimed limitations recited in Claim 20. Malladi further teaches wherein the high-speed control channel is a HS-DPCCH (high speed dedicated physical control channel) (Col. 2 lines 40 – 47).

Regarding Claim 24, Malladi teaches all of the claimed limitations recited in Claim 20. Malladi further teaches wherein the decreasing step is applied by the

terminal for a plurality of slots (Cols. 2 lines 14 – 34, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the control channel frames comprise slots thus the adjusting of the threshold (T) and the traffic to pilot ratio enables an adjustment of the power level of the DPCCH and the HS-DPCCH for a particular number of slots for optimal demodulation).

Regarding Claim 25, Malladi teaches all of the claimed limitations recited in Claim 20. Malladi further teaches wherein the first uplink transmission control power is applied to groups of slots, each group having at least two slots (Cols. 2 lines 14 – 34, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the control channel frames comprise slots thus the adjusting of the threshold (T) and the traffic to pilot ratio enables an adjustment of the power level of the DPCCH and the HS-DPCCH for a particular number of slots for optimal demodulation).

Regarding Claim 26, Malladi teaches all of the claimed limitations recited in Claim 20. Malladi further teaches wherein the second uplink transmission control power is applied to each individual slot (Cols. 2 lines 14 – 34, lines 40 – 47, 3 lines 12 – 17, lines 36 – 49, the control channel frames comprise slots thus the adjusting of the threshold (T) and the traffic to pilot ratio enables an adjustment of the power level of the DPCCH and the HS-DPCCH for a particular number of slots for optimal demodulation).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 6 – 8, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malladi et al. (US 6,850,771) in view of Kitagawa et al. (US 6,603,980).

Regarding Claim 6, Malladi teaches all of the claimed limitations recited in Claim 2. Malladi does not teach wherein the re-adjusted power includes a value for compensating power control error occurring due to abrupt power reduction.

Kitagawa teaches a value for compensating power control error occurring due to abrupt power reduction (Col. 9 lines 18 – 22, lines 42 – 47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the power control system of Malladi with the compensation system Kitagawa for the purpose of converging to the desired signal quality quickly as taught by Kitagawa.

Regarding Claim 7, Malladi in view of Kitagawa teaches all of the claimed limitations recited in Claim 6. Kitagawa further teaches wherein the value for compensating the power control error is 0 (Col. 9 lines 18 – 22, lines 42 – 47, the dynamic compensation enables a plurality of compensation values).

Regarding Claim 8, Malladi in view of Kitagawa teaches all of the claimed limitations recited in Claim 6. Kitagawa further teaches wherein the value for compensating the power control error is 1 (Col. 9 lines 18 – 22, lines 42 – 47, the dynamic compensation enables a plurality of compensation values).

Regarding Claim 23. Malladi teaches all of the claimed limitations recited in Claim 20. Malladi does not teach wherein the decreasing step includes compensation for power control errors.

Kitagawa teaches wherein the decreasing step includes compensation for power control errors (Col. 9 lines 18 – 22, lines 42 – 47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the power control system of Malladi with the compensation system Kitagawa for the purpose of converging to the desired signal quality quickly as taught by Kitagawa.

Allowable Subject Matter

6. Claims 3 – 5, 9 – 10, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or show the following: wherein the power level increment is removed by an equation of [[increased power]+ -d.times..DELTA.TPC]], wherein `d` is a value of deducing the increment of the power of the general control channel and `.DELTA.TPC` is power intensity increasing or decreasing according to unit power level, wherein the power level increment is

removed by an equation of `(increased power)-Max[0, [d-f(K_intv)]]`, wherein `K_intv` is a number of slots from a time point of ending a current specific control channel transmission to a time point of initiating a next specific control channel transmission, `f(K_intv)` is an arbitrary function using `K_intv` as a factor, and `Max[a, b]` is a function of selecting the greater of `a` or `b`, wherein the re-adjusting step is carried out using an equation of `(power-d)+[TPC_comb(HS_end)+y].times..D-ELTA.TPC`, wherein `TPC_comb(HS_end)` is a power control value found by using power control commands collected from base stations in soft handover for a slot after completion of HS-DPCCH signal transmission, `.DELTA.TPC` is power intensity increasing or decreasing according to unit power level, and `y` is a value for compensating power control error occurring due to abrupt power reduction, wherein the value for compensating the power control error is TPC_comb(HS_start) and wherein `TPC_comb(HS_start)` is a power control value found by using power control commands collected from base stations in soft handover for a slot after completion of HS-DPCCH signal transmission, wherein the value for compensating the power control error is [TPC_comb(HS_start)+1] and wherein `TPC_comb(HS_start)` is a power control value found by using power control commands collected from base stations in soft handover for a slot after completion of HS-DPCCH signal transmission, wherein a power level requested by current general control channel transmission is found by an equation of `.DELTA..sub.DPCCH=( d.times..DELTA.TPC)+[TPC_comb(HS_end)+y].times..D- ELTA.TPC`, wherein `d` is a value of deducing a general control channel power increment required for transmitting

the specific control channel signal, `TPC_comb(HS_end)` is a power control value found by using power control commands collected from base stations in soft handover for a slot after completion of HS-DPCCH signal transmission, `.DELTA.TPC` is power intensity increasing or decreasing according to a unit power level, and `y` is a value for compensating power control error occurring due to abrupt power reduction.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond S. Dean whose telephone number is 571-272-7877. The examiner can normally be reached on Monday-Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Raymond S. Dean
October 25, 2006

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